

Atty. Docket: P2000,0139US

What is Claimed is:

1. An arrangement for calibrating a camera, comprising:
a camera for recording a digital image, said camera including processing means
for processing said digital image and calibrating said camera according to said process-
ing, and;

a figure arranged to be recorded by said camera, said figure comprising a first
portion having a continuous circular shape and a second portion with a plurality of cir-
cularly arranged spaced segments, said second portion is arranged around said first por-
tion, said second portion arranged around said first portion.

2. The arrangement according to figure 1, wherein said processing means further
comprises:

means for performing an edge point transformation detection of said recorded
image;

means for performing a Hough Transformation on said edge points;

means for obtaining a radius from said first portion; and

means for using said radius to provide a conversation factor representative of a
distance between said camera and said figure.

3. The arrangement according to claim 1, wherein said first portion comprises a
disk and said second portion comprises at least one circularly arranged bar code.

4. The arrangement according to claim 3, wherein said bar code includes encoded
control information used in said calibrating.

5. The arrangement according to claim 3, wherein said bar code includes encoded
information related to another figure.

6. The arrangement according to claim 3, wherein said bar code includes an en-
coded telephone number.

7. The arrangement according to claim 3, wherein said bar code includes an en-
coded URL address.

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8. The arrangement according to claim 3, wherein said second portion comprises two stacked circularly arranged bar codes each comprising different encoded information.

5 9. The arrangement according to claim 1, wherein said camera further comprises communication means for transmitting data to a remote host.

10 10. The arrangement according to claim 9, wherein said remote host is identified in said second portion.

11. The arrangement according to claim 9, wherein said communication means communicates via a dial up communication.

12. A method of calibrating a camera, comprising the steps of:
15 - digitally recording an image of a figure, said figure comprising a first portion having a continuous circular shape and a second portion having a plurality of circularly spaced segments;
- extracting a set of edge points from said recorded image;
- performing a transform on said edge points thereby obtaining an image center
20 point; and
- obtaining a diameter of said first portion to provide a conversion factor comprising a distance between said camera and said image.

13. The method according to claim 12, further comprising the steps of:
25 - obtaining an intensity profile and intensity pattern of said second portion;
- decoding said intensity pattern to obtain data, said data representing a diameter of said first portion.

14. The method according to claim 13, further comprising the step of transmitting
30 image information to a remote host, and wherein said data comprises remote host contact information.

15. The method according to claim 14, wherein said data comprises information concerning a second figure, and further comprising the steps of:

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- attaching said figure to said second figure;
- digitally recording said second figure; and
- transmitting said digitally recorded second figure to a remote host.

5 16. The method according to claim 12, further comprising the steps of:

- determining a radius of said first portion by obtaining a first portion edge point and obtaining a first portion intensity profile using said first portion edge point and said center point.

10 17. The method according to claim 16, further comprising the steps of:

- performing a linear transformation of said image into a plane normal to said camera and said center point; and
- obtaining at least two radii of said first portion.

15 18. The method according to claim 12, wherein said plurality of segments define a major and minor radius to said center point and edge gradients, and further comprising the steps of:

- obtaining a vote line in a direction orthogonal to at least one edge gradient, said vote line having a length between said major and minor radius;
- 20 - determining an intersection of said vote lines, said intersection representing an image center point.

19. The method according to claim 12, wherein said segments define at least one circular bar code.

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20. The method according to claim 19, wherein said segments define two stacked bar codes.

21. The method according to claim 19, wherein said bar codes comprise encoded
30 information related to a host, and further comprising the step of transmitting data related to said figure to said host.

22. The method according to claim 21, wherein said data is transmitted via a dial up communication.

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23. The method according to claim 19, wherein said figure is affixed to a second figure, said bar code comprises encoded information related to said second figure and said transmitted data comprises data related to said second figure.

5 24. The method according to claim 23, wherein said camera comprises programming means and further comprising the step of programming said camera to periodically calibrate with said figure.

25. The method according to claim 12, wherein said transform is a Hough Trans-
10 form.